

North Fork Payette River Watershed Agricultural TMDL Implementation Plan



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In cooperation with the

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INTRODUCTION

Purpose

The purpose of this Total Maximum Daily Load (TMDL) Implementation Plan for Agriculture is to provide a prioritization strategy for implementing Best Management Practices (BMPs) conservation improvements on privately owned lands. The intent is to restore designated beneficial uses on the 303(d) listed streams within the North Fork Payette River (NFPR) Watershed by reducing pollutant contributions from privately owned parcels of agricultural land.

The North Fork Payette River Watershed Advisory Group (WAG), Idaho Department of Environmental Quality (IDEQ), Forest Service (USFS), Idaho Department of Lands (IDL), Idaho Soil Conservation Commission (ISCC), and Idaho Association of Soil Conservation Districts (IASCD), were involved in developing the allocation processes and their continued participation will be critical while implementing this TMDL Implementation for Agriculture.

Goals and Objectives

The goal of this plan is to assist and/or compliment other watershed efforts to restore beneficial uses for the 303(d) listed stream segments within the North Fork Payette River Watershed. The agricultural component of the North Fork Payette River Watershed TMDL Implementation Plan includes an adaptive management approach for the implementation of Resource Management Systems (RMSs) and Best Management Practices (BMPs) to meet the requirements for the North Fork Payette River TMDL.

The primary objective of this plan is to reduce the amount of sediment entering the North Fork Payette River system. Agricultural RMSs and BMPs on privately owned land will be developed and implemented on a site-specific basis with individual agricultural operators as per the 2003 Idaho Agricultural Pollution Abatement Plan (APAP)(ISCC, 2003).

The State of Idaho has adopted a non-regulatory approach to control agricultural non-point sources. However, regulatory authority can be found in the Idaho Water Quality Standards and Wastewater Treatment Requirements (IDAPA 58.01.02.350.01 through 58.01.02.350.03), which provides direction to the agricultural community and includes a list of approved BMPs. A portion of the APAP outlines responsible agencies or elected groups designated to address non-point source pollution problems.

Another objective of this plan is the implementation of a water quality outreach program that will encourage landowner participation in the application of water quality BMPs. Emphasis will also be placed on BMP effectiveness evaluation and monitoring in terms of pollutant reduction and impacts on designated beneficial uses of the listed stream segments.

For agricultural activities on private land, the Valley Soil & Water Conservation District (VSWCD) in cooperation with the Idaho Soil Conservation Commission (ISCC), the Idaho Association of Soil Conservation Districts (IASCD), and the Natural Resource Conservation Service (NRCS) can assist landowners in developing and implementing conservation plans that incorporate BMPs that will help meet TMDL allocation targets.

BACKGROUND

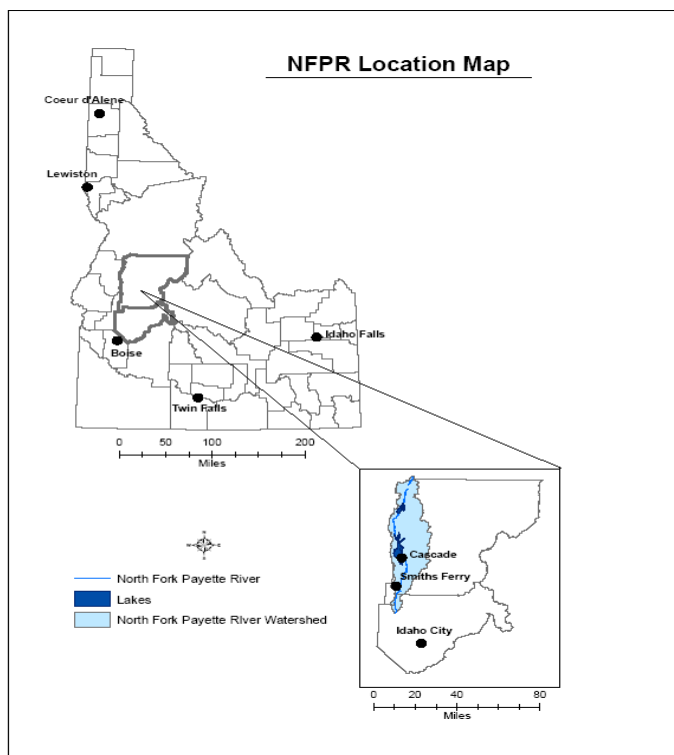
Project Setting

The North Fork Payette River watershed is surrounded by high elevation mountains to the north and bordered by low-lying, arid foothills to the south. The North Fork Payette River watershed is located in Valley, Gem and Boise counties. The North Fork TMDL originates at the spillway and dam located on Cascade Reservoir. Effectively, the TMDL boundary ends at the Black Canyon Reservoir Dam and encompasses the river system upstream of that point to Cascade Reservoir. The subwatersheds Big Creek, Clear Creek, Round Valley Creek, and NFPR from Clear Creek to Smith's Ferry, are 303(d) listed for sediment, and have TMDLs (Figure 3).

The North Fork Payette River Subbasin covers approximately 593,218 acres, and comprises approximately 222,907 acres of agricultural land (pasture, crop, range). Approximately 111,526 acres of the 222,907 acres are comprised in the North Fork Payette River TMDL. The remaining 111,381 acres are addressed in the Cascade Reservoir Phase I and II agricultural implementation plan or not considered agriculture.

The high elevation eastern and northern sections of the watershed are classified as part of the Northern Rockies ecoregion with geology and soil structures typical of the Northern Rocky Mountains. Crystalline igneous rocks of volcanic origin make up the coarse textured soils of the region. This region is part of the Idaho Batholith. Natural vegetation in the watershed includes spruce, fir and pine forests; mountain grass/forb meadows; and riparian and wetland complexes.

Figure 1. North Fork Payette River Watershed Location Map



Land Ownership

Land ownership is diverse, with private land comprising 56% and public lands (state&federal) comprising 44% (Figure 2). The watershed has no recognized tribal lands. Agricultural land use is diverse and includes irrigated cropland, irrigated pasture, forested areas, dry land agriculture, upland rangeland, and riparian pasture (figure 3). Within the southern portion of the watershed, the state owns considerable tracts of land. Most of the low-lying areas bordering the river from Gardena to Montour are privately held lands, as well as agricultural ground along the North Forth Payette River from Cascade to Cabarton Road and in Smiths Ferry.

Table 1. North Fork Payette River Land Ownership

Owner	Acres
B.L.M.	6,493
Open water	35,650
Private	329,495
State of Idaho	84,299
Forest Service	137,281
Total	593,218

Numbers generated from ArcGis 9.1 program layers

Figure 2. North Fork Payette Land percentages

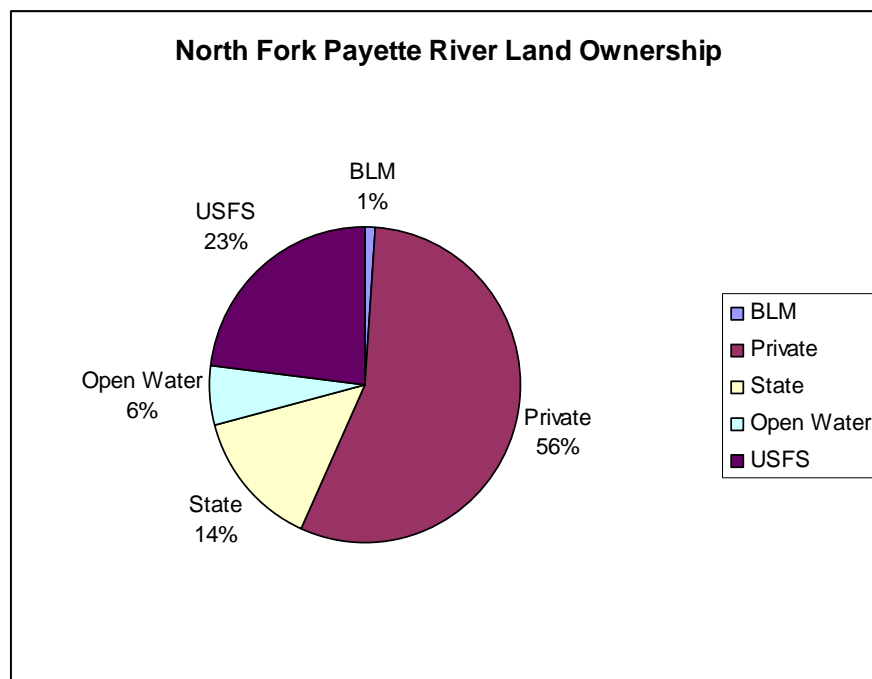
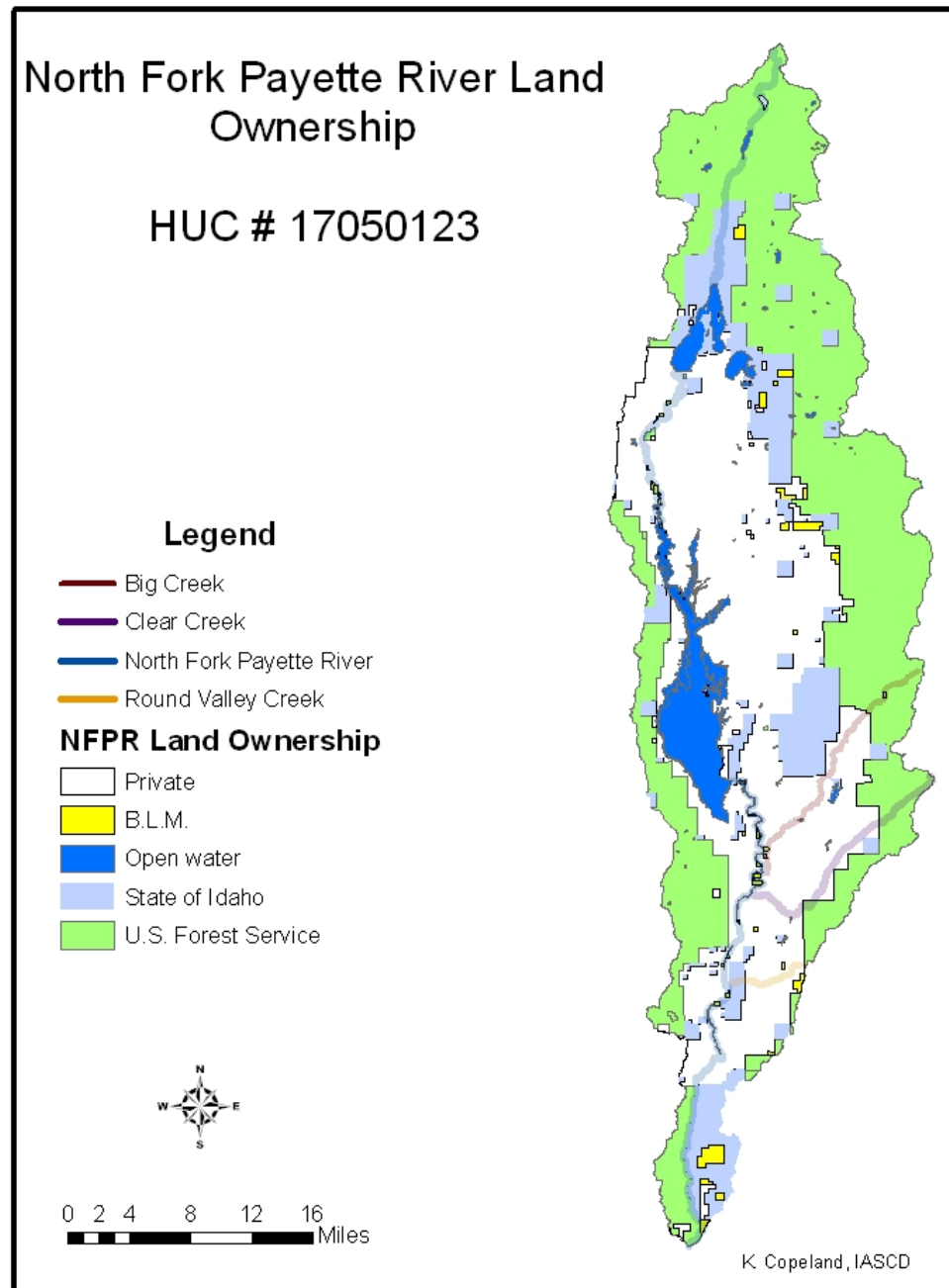


Figure 3. North Fork Payette River Land Ownership Map



Land Use

Agricultural land use is diverse and includes irrigated cropland, irrigated pasture, forested areas, dry land agriculture, upland rangeland, and riparian pasture (figure 3). The North Fork Payette River Watershed consists of 593,218 acres. There are approximately 222,907 agricultural acres in the watershed consisting primarily of irrigated and dry land pastures and some hayland. Surface irrigation is used on approximately 70% of the acreage, while sprinkler irrigation accounts for about 20%, and dryland pasture and grazed forest account for 10%.

Agriculture land use in the watershed consists primarily of livestock (cattle) grazing and pasture/hayland farming. Table 2 illustrates the number of farms and crops in the NFPR watershed. The majority of livestock grazing occurs in the upland pasture areas of Round Valley between the headwaters and Cabarton Road. There are four active grazing allotments along the river riparian area comprised approximately 43,359 acres. Cattle graze on 559 acres in the Big Creek watershed, with 24,700 acres grazed by cattle and sheep in the Clear Creek watershed and Horsethief Reservoir area. In High Valley, cattle graze on 2400 acres, and in Smiths Ferry, 17,700 acres are grazed by sheep (Gurnsey, 2006).

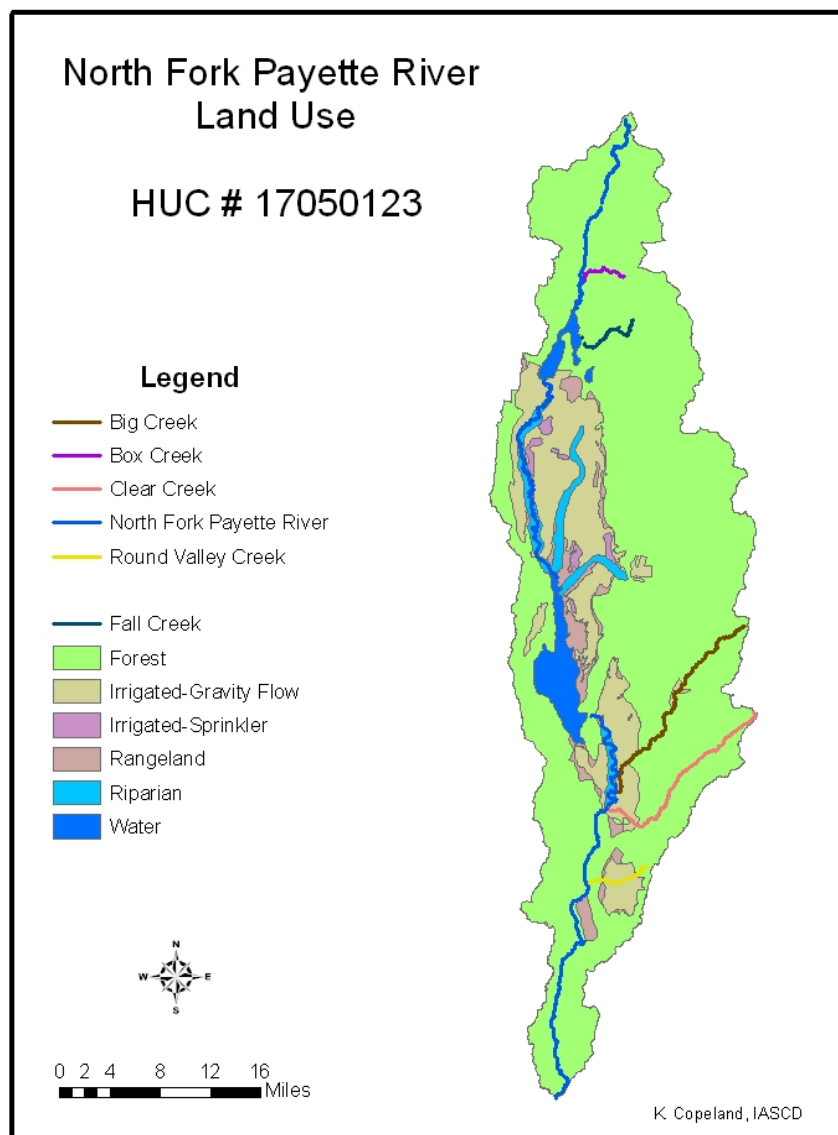
Population is difficult to determine because much of the population growth in the watershed lies in portions of Valley, Gem and Boise counties. The highest population in the watershed occurs in Horseshoe Bend and Cascade. Horseshoe Bend's population increased from 511 in 1970 to 819 in 2004, while Cascade's population increased from 833 in 1970 to 977 in 2004 (Idaho Commerce, 2006).

There are several towns and small communities located within the NFPR TMDL region. Most of them are located along the State Highway 55 corridor, which parallels the North Fork of the Payette River from Horseshoe Bend to Cascade. These communities include Cascade, Smiths Ferry, Banks, Gardena and Horseshoe Bend. As the Payette River turns westward, the communities included along State Highway 52 are Montour and Squaw Creek. The Squaw Creek drainage includes the communities of Montour, Sweet, and Ola. The northern portion of the NFPR offers tourist and recreational opportunities. In addition to agriculture, other land use activities in the watershed include whitewater rafting, camping, off road vehicles, fishing, boating, hunting, skiing and snowboarding, and snowmobiling.

Farms	156
Land in farms (acres)	65,501
Irrigated Land (farms)	19,856
Crops harvested (Forage)-land used for all hay and all haylage, grass silage, and green chop (acres)	3,647
crops harvested-oats for grain (farms)	985
Total Irrigated Past	2,662
Total dryland past/grazed forest	45,645

Table 2. Number of Farms and Crops in Valley County (USDA, 2002)

Figure 4. Distribution of the land use in the North Fork Payette River Watershed.



Accomplishments

Over the years since the early 1990s, many landowners and operators in the North Fork Payette River Watershed have voluntarily installed BMPs on their own and in cooperation with the VSWCD, IDEQ and NRCS. Based on field observations by ISCC and IASCD staff, the BMPs that have already been installed have greatly improved water quality within the watershed. See Appendix E for BMP examples.

The following table summarizes accomplishments on agricultural lands within the NFPR watershed to date by subwatershed to date. BMPs summarized in these tables were installed based on NRCS standards and specifications. Practice codes were obtained from the NRCS EFOTG database and used as a reference to applied practices.

Table 3. North Fork Payette River Subwatershed Accomplishments

Subwatershed	Program	Practice	Total Units
Big Creek	EQIP(NRCS)	Practice Code: 666 Forest Stand Improvement	159 acres
Clear Creek	EQIP(NRCS)	Practice Code: 382 Fencing	5430 Feet
	EQIP(NRCS)	Practice Code: 472 Use Exclusion	3 acres
North Fork Payette River	EQIP(NRCS)	Practice Code: 512 Pasture Planting with No-Till Drill	52 acres
	EQIP(NRCS)	Practice Code: 442 Irrigation System, Sprinkler	220 acres
	EQIP(NRCS)	Practice Code: 587 Structures for Water Control	4 each
	EQIP(NRCS)	Practice Code: 430 DD IWC Pipeline	4460 Feet
Round Valley Creek	EQIP(NRCS)	Practice Code: 512 Pasture Planting	53 acres
	EQIP(NRCS)	Practice Code: 561 Heavy Use Protection Area	1 each

IDENTIFICATION OF PROBLEMS

The North Fork Payette River Subbasin Assessment was approved by EPA August 17, 2005. In many cases, pre-existing ephemeral and intermittent channels have been modified for irrigation water delivery or return flow for croplands and pastures. In particular, most creeks have been straightened and deepened in large stretches so that they now resemble canals or ditches rather than natural creeks or streams. In many cases, the excess irrigation water is delivered via surface drainage systems back to the North Fork Payette River, Cascade and/or Black Canyon Reservoirs.

Beneficial Use Status

Big Creek, Clear Creek, Round Valley Creek, and the North Fork Payette River (Clear Creek to Smith's Ferry) are listed on the state of Idaho's 303(d) list of water quality impaired water bodies (IDEQ, 2005). Designated uses for the North Fork Payette River, Big Creek, Clear Creek, and Round Valley Creek are cold water aquatic life, salmonid spawning, primary contact recreation, domestic water supply, and special resource water, which is yet to be determined. Descriptions of beneficial uses are defined by IDEQ in the NFPR TMDL (IDEQ, 2005). However, the beneficial uses of these water bodies are listed as undesignated in the North Fork Payette River Subbasin Assessment. Beneficial use status is not clearly described in the subbasin assessment by IDEQ. Table 4 below is a summary of specific 303(d) listed stream segments for which load allocations have been established.

Table 4. Streams and pollutants for which TMDLs were developed by Idaho Department of Environmental Quality, 2005.

Stream	Pollutants
Big Creek (Horsethief Creek to North Fork Payette River)	Sediment
Clear Creek (Headwaters to North Fork Payette River)	Sediment
North Fork Payette River (Clear Creek to Smith's Ferry)	Sediment
Round Valley Creek (Headwaters to North Fork Payette River)	Sediment

Pollutants: Load Allocations and Reductions

This section describes the sediment load allocations for the North Fork Payette River watershed. The North Fork Payette River, Big Creek, Lower Clear Creek and Round Valley Creek are receiving sediment allocations due to excess streambank erosion. Two different types of load allocations are given for the middle and upper reaches of Clear Creek based on sediment source (instream erosion and road sediment delivery).

The primary nutrient impairing beneficial uses is sediment. A target of 25 mg/l seasonal average for suspended sediment has been set for the North Fork Payette River, based upon the work done in the

draft North Fork Payette River TMDL (IDEQ, 2005). The critical period for target application is March-September in lower elevations, and June-September in higher elevations.

Streambank channel erosion is the primary source of sediment loading in Big Creek, Round Valley Creek, Lower Clear Creek, and North Fork Payette River (Cascade Dam to Cabarton Bridge). Land management practices may contribute to unstable banks and this resultant instability leads to sediment delivery to the stream channel. The surrogate target of 80% bank stability was selected for maintaining less than 30% depth fines for the specific Rosgen type stream. To determine the amount of instream erosion present IDEQ used the bank geometry of each measured reach and the lateral recession rate to come up with a reference reach.

IDEQ based the reference reach on the hydrogeologic conditions for each stream that would result in greater than 80% bank stability. These are the overall decreases necessary in the stream but can only reasonably apply to areas where banks are less than 80% stable (IDEQ, 2005).

Table 5. TMDL Water Quality Targets developed by Idaho Department of Environmental Quality, 2005.

Pollutant	Target	Application
Sediment	80% Bank Stability (surrogate for sediment)	Big Creek, Round Valley Creek, Lower Clear Creek
Sediment	12% above Natural Background sediment delivery conditions as determined by BOISED modeling	Upper and middle Clear Creek
Sediment	25 mg/l seasonal average suspended sediment 80% bank stability	North Fork Payette River (Clear Creek to Smith's Ferry)

The targets were designed by IDEQ to reflect the critical period as the time of runoff until the end of the irrigation season (June to September). Target design was based on runoff and low flow periods during summer months when these water bodies are believed to be the most vulnerable to impairment.

Table 6. Stream bank erosion load allocations for Big Creek, NFPR, Lower and Middle Clear Creek and Round Valley Creek.

Water Body	Current Erosion Rate (tons/mile /year)	Target Erosion Rate (tons/mile / year)	Current Total Erosion (tons/year)	Load Allocation & Load Capacity (tons/year)	% Decrease
Big Creek	62.56	48.61	528	410	22
Lower Clear Creek	86	45	349	182	48
Round Valley Creek	33	26.67	131	107	18
NFPR (Cascade Dam to Clear Creek)	72	45	864	547	36
Middle Clear Creek	1157	957	1081	124	38

Water Quality Monitoring Data (Results)

The North Fork Payette River has several historic and current USGS gauge sites, along with nutrient and sediment information collected by BOR and IDEQ. The IDEQ uses BURP (Beneficial Use Reconnaissance Program) to collect and measure key water quality variables and aid in determining the beneficial use support status of Idaho's water bodies. There was limited data collected for tributary streams and limited summer season monitoring was done by IDEQ at the time of the development of the TMDL. In addition, the US Bureau of Reclamation, US Forest Service, and USGS assessed the North Fork Payette River/Reservoir over various years (IDEQ, 2005). Idaho Department of Agriculture was not asked at the time of TMDL development to participate in any monitoring on the TMDL listed reach of the North Fork Payette River or its tributaries (Campbell, 2007).

From 2002 to 2004, IDEQ conducted BURP assessments on the TMDL reach of the North Fork Payette River and its tributaries. The data collected on the listed subwatersheds can be found in Appendices A-D. From 1989 to 2003, upstream water quality (Cascade Reservoir Dam) was assessed. In 1999, water quality was assessed below Black Canyon Reservoir (IDEQ, 2005).

Riparian Inventory and Evaluation

During the 2004 field season, from June to August, the Valley SWCD, ISCC and IASCD staff assessed two reaches on 18 miles of Big Creek. An additional two reaches were also assessed, but due to missing data they are not stated in this report. The North Fork Payette River WAG requested that the reaches will be re-assessed in the summer of 2007. Eight reaches on 15.8 miles of Clear

Creek was assessed and eight reaches on 4.3 miles of Round Valley Creek. In 2006, IASCD staff assessed three reaches on 9.8 miles of the North Fork Payette River from below Cascade Dam to Cabarton Bridge (Clear Creek).

A target was set by IDEQ of 80% bank stability for the listed reaches Big Creek, Clear Creek, Round Valley, and North Fork Payette River (Clear Creek to Smith's Ferry). These reaches were assessed using the proper functioning condition protocol, focusing on streambank stability, and streambank erosion control.

Proper Functioning Condition

Proper Functioning Condition (PFC), developed in February 1988, was the method used by ISCC and IASCD staff in 2004 to assess perennial tributaries to the North Fork Payette River that flow through private agricultural land. The PFC method for assessing riparian-wetland areas was developed by an interdisciplinary team of specialists from the BLM, NRCS, and FWS (Prichard, 1998).

If not in PFC, riparian areas are placed into one of these three other categories:

- Proper Functioning Condition: A stream functioning at optimal condition.
- Functional-At Risk: Riparian wetland areas that are in functional condition, but an existing soil, water or vegetation attribute makes them susceptible to degradation.
- Non-Functional: Riparian-wetland areas that are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows, and are not reducing erosion, or improving water quality.
- Unknown: Riparian-wetland areas that manages a of lack sufficient information to make a determination (Prichard, 1998).

PFC field sheets used during the 2004 stream reaches assessments are on file at the VSWCD. The results from the 2004 PFC assessments are shown in Table 7 below.

Table 7. Riparian Assessment Results on Big, Clear, and Round Valley Creeks

Proper Functioning Condition	→ 0.5 miles were in Proper Functioning Condition → 8.0 miles were Functioning at Risk → 0.7 miles were Non-Functional
Streambank Stability	→ 5.5 miles with streambank stability >80% TMDL target → 3.7 miles with streambank stability <80% TMDL target
Streambank Erosion Control	→ 3.6 miles had erosion → 5.6 miles had no or slight erosion

Streambank Stability-NFPR

The North Fork Payette River (below Cascade Dam to Clear Creek) was visually assessed to determine bank stability by floating the reach. IDEQ used aerial photography to determine that banks were less than 80% stable. Three reaches were assessed in July 2006 by IASCD staff, and the North Fork Payette River appeared to have slight bank erosion. A total of 565 feet was found to be unstable in a 51,837 ft. reach. The assessment found 0.5% unstable streambanks with an overall bank stability of 99.5% for this reach. See Appendix F for a summary of riparian recommended tasks.

Irrigated Pasture Inventory and Evaluation

Irrigated pasture and dryland pasture/grazed forest were inventoried by direct on site field evaluation and the use of satellite and aerial photography. See table 8 for the North Fork Payette River watershed critical acres.

IMPLEMENTATION PRIORITY

Critical Areas

Critical areas are areas with the most significant impact on water quality. Critical areas include pollutant source and transport areas that have severe stream bank erosion and instability and large sediment loading. The NFPR watershed consists of approximately 222,907 acres of agricultural land (pasture, crop and range) and approximately 111,526 TMDL critical acres. Private agriculture in critical areas accounts for 22,532 acres. Table 8 below shows the breakdown of the critical areas within the NFPR watershed. This information was collected and interpreted from the ArcGIS program, field and land use inventories.

Private landowners own approximately 3,333 riparian acres and 5,819 acres of surface irrigated pasture. Private timber and privately owned dryland pasture accounts for 6,613 acres. The remaining 99,094 acres of surface irrigated pasture, dryland pasture, and grazed timber are not considered critical acreage, or 303(d) listed subwatersheds in the TMDL.

Table 8. Critical Acres in the North Fork Payette River Watershed

Subwatershed	Riparian Total Acres	Surface Irrigated Pasture/Hayland Total Acres	Dryland Pasture/Grazed Timber Total Acres
Big Creek	2,103	2,462	3,567
Clear Creek	700	338	370
Round Valley	30	2,919	1,676
NFPR (CC to SF)	500	100	1,000
Total TMDL acreage	3,333	5,819	6,613

TREATMENTS

Treatment Units

The watershed is divided into three critical area treatment units (TU) with similar land uses, soils, productivity, resource concerns and treatment needs. Each subwatershed is outlined with a description of the treatment unit on Table 9. These four subwatersheds will be targeted to receive project funds as they can be secured. Priority levels were based upon results that were interpreted from the 2004 Proper Functioning Condition Assessment performed by IASCD and ISCC staff on Big Creek, Clear Creek, and Round Valley Creek.

High priority is given to reaches found in Round Valley, with Clear Creek being of moderate priority, Big Creek, moderate to low priority, and North Fork Payette River from Clear Creek to Smith's Ferry, low priority for treatments.

Conservation plans will be developed by the ISCC and IASCD in conjunction with NRCS and VSWCD. BMPs will be implemented in the watershed on a site specific basis based upon individual conservation plans.

Table 9. North Fork Payette River Treatment Unit Acres

	TU 1	TU 2	TU 3
Watershed	Riparian Acres Wetland/Pasture	Surface Irrigated Pasture/Hayland	Dryland Pasture/ Grazed Forest
Big Creek	2,103	8,208	35,665
Clear Creek	700	1,694	24,700
Round Valley	30	7,297	8,384
North Fork Payette (Clear Creek to Smith's Ferry)	500	2,000	20,100
Total	3,333	19,199	88,849

For BMPs and the cost list see Table 11.

See Appendix F for riparian recommendations.

Table 10. Treatment Units: Acreage Summary and Resource Concerns**Treatment Unit #1 Riparian Wetland/Pasture 0-2% Slopes**

Total Acres	Soils	Resource Problems
3,333	Fine-Sandy Loam *Archabal; Gestrin Series	Plant Productivity
		Streambank degradation
		Surface water quality (suspended sediment)

Treatment Unit #2 Surface Irrigated Pasture/Hayland 0-2% slopes

Total Acres	Soils	Resource Problems
19,199	Fine-Sandy Loam *Melton; Roseberry Series	Soil Condition (compaction)
		Streambank erosion from irrigation return
		Irrigation management

Treatment Unit #3 Dryland Pasture/Grazed Forest 0-3% slopes

Total Acres	Soils	Resource Problems
88,849	Sand-Loam *Jugson Series	Plant productivity-health, vigor
		Loss of riparian vegetation

*As described or fully defined in the Valley County Soils Survey located in the VSWCD office or USDA NRCS web soil survey site <http://soils.usda.gov/survey>.

Planning Considerations and Alternatives

Implementation alternatives range from no action, to implementation of all practices identified for the delineated treatment units. Over the past five years, the Valley Soil and Water Conservation District has taken an active role in promoting conservation efforts through programs such as EQIP (NRCS), EPA 319, and recently the Water Quality Program for Agriculture (WQPA) administered by the ISCC. With willing landowners and operators who voluntarily participate in these programs, both structural and management practices can be implemented on range ground, as well as dry cropland, irrigated cropland, and pasture. An emphasis will be placed on riparian and stream channel restoration and bank stability.

Alternatives range from no action to implementation of all practices identified for the delineated treatment units. Three alternatives have been outlined in this implementation plan for application on private land. The goals of these alternatives are to address agricultural nonpoint source pollution control on critical acres. The following were used for consideration:

1. Alternative 1- No Action
2. Alternative 2 – Treatment of riparian areas only
3. Alternative 3 – Treatment all resource concerns

Alternative Selection

The VSWCD selected Alternative 3 for this watershed. This alternative meets the objectives set forth in the VSWCD five-year plan by improving water quality in the North Fork Payette River Watershed (VSWCD, 2007).

BMP Implementation Alternatives and Costs

The costs to install BMPs on private agricultural lands are estimated in this plan to provide the local community, government agencies, and watershed stakeholders some perspective on the economic demands of meeting specific TMDL goals. Availability of cost-share funds to agricultural producers within the North Fork Payette River Watershed will likely be necessary to meet the TMDL requirements within each stream segment that received a load reduction target.

The cost list to install BMPs on private agricultural land is available from the VSWCD in Cascade. These costs have been developed through actual tracking of average BMP installation costs and are used county-wide to determine allowed contracted costs through the EQIP. Since actual costs to install a BMP may not be known until during or after installation, a more accurate watershed-wide budget will be developed during the on-site planning and implementation process. Table 11 on the following page provides the typical costs for many of the applicable BMP components for southern Idaho.

The costs below were derived from the NRCS-2007 EQIP Idaho State Cost List. Costs may increase with greater travel distances and accessibility. Costs are estimated and reflect the critical area treatment units and acreages mentioned earlier. These are estimates of BMP treatments at a 100% fix and for both sides of the stream.

Table 11. Average Costs of Component Practices Applicable to Valley County

Treatment Unit	BMP	Unit Type	Unit Cost	Unit Amount	Total Funds
TU 1 Riparian Wetland/Pasture (3,333 Acres)	Stream Crossing	No.	\$3,500.00	50	\$175,000.00
	Critical Area Planting	acre	\$250.00	2000	\$500,000.00
	Fence	Ft	\$2.00	44,200	88,400.00
	Pipeline	Ft	\$2.59	20,000	\$51,800.00
	Watering Facility	No	\$1,500.00	40	\$60,000.00
	Spring Development	No	\$2,350.00	40	\$94,000.00
	Use Exclusion	acre	\$35.00	700	\$24,500.00
	Tree/Shrub Establishment	Ft	\$610.00	18,892	\$11,524,120.00
	Prescribed Grazing	acre	\$5.00	2000	\$10,000.00
	Wetland Enhancement	acre	\$2,000.00	100	\$200,000.00
		Riparian Wetland/Pasture Subtotal			\$12,727,820.00
TU 2 Surface Irrigated Pasture/Hayland (5,819 Acres)	Fence	ft.	\$2.00	41,353	\$82,706.00
	Prescribed Grazing	acre	\$5.00	5,000	\$25,000.00
	Watering Facility	No	\$1,500.00	40	\$60,000.00
	Pipeline	Ft	\$2.59	10,000	\$25,900.00
	Spring Development	No.	\$2,350.00	20	\$47,000.00
	Irrigation System, Sprinkler	acre	\$1,300.00	2,500	\$3,250,000.00
	Irrigation Water Management	acre	\$10.00	2,500	\$25,000.00
	Pasture and Hayland Planting	acre	\$100.00	1000	\$100,000.00
		Surface Irrigated Pasture/Hayland Subtotal			\$3,615,606.00
TU 3 Dryland Pasture/Grazed Forest (6,613 Acres)	Critical Area Plantings	acre	\$250.00	1,500	\$375,000.00
	Fence	ft	\$2.00	12,000	\$24,000.00
	Watering Facility	No	\$1,500.00	20	\$30,000.00
	Pipeline	ft	\$2.59	15,000	\$38,850.00
	Stream Crossing	No.	\$3,500.00	15	\$52,500.00
	Use Exclusion	acre	\$35.00	2,996	\$104,860.00
	Spring Development	No	\$2,350.00	20	\$47,000.00
		Grazed Forest/Range Subtotal			\$672,210.00
				Total	\$17,015,636.00

FUNDING

Landowners can enter into voluntary water quality contracts with the VSWCD to reduce out of pocket expenses to implement BMPs. The USDA Natural Resources Conservation Service (NRCS), Idaho Soil Conservation Commission (ISCC), and Idaho Association of Soil Conservation Districts (IASCD) are technical agencies that can assist landowners in conservation plan development, BMP design, and identification of funding sources. Each landowner participating in an SCD sponsored program is responsible for installing the BMPs scheduled within their water quality contract (plan of operations). Each participant is also required to make their own arrangements for financing their share of installation costs.

Financial and technical assistance for installation of BMPs is needed to ensure success of this implementation plan. There are many potential sources for funding that will be actively pursued by the Valley SWCD to implement water quality improvements on private agricultural and grazing lands. These sources include (but are not limited to):

319 Grant Program: These are EPA funds, which are allocated to the State of Idaho DEQ to be distributed on a competitive basis. These funds are used to treat non-point sources identified in the TMDL implementation plan.

http://www.deq.idaho.gov/water/prog_issues/surface_water/nonpoint.cfm#management

§104(b)(3)...Tribal and State Wetland Protection Grant, EPA

<http://yosemite.epa.gov/R10/HOMEPAGE.NSF/webpage/Grants>

This program provides financial assistance to state, tribal, and local government agencies to develop new wetland protection programs or refine and improve existing programs. All projects must clearly demonstrate a direct link to improving an applicant's ability to protect, restore or manage its wetland resources.

Challenge Cost-share Program, BLM

<http://www.dfw.state.or.us/ODFWhtml/VolunteerProg/STEP.html>

This program provides 50% cost-share monies on fish, wildlife, and riparian enhancement projects to non-federal entities.

Conservation Operations Program (CO-01), NRCS

<http://www.id.nrcs.usda.gov/programs/financial.html>

The CO-01 program provides technical assistance to individuals and groups of landowners for the purpose of establishing a link between water quality and the implementation of conservation practices. The NRCS technical assistance provides farmers and ranchers with information and detailed plans necessary to conserve their natural resources and improve water quality.

Conservation Improvement Grants, ISCC <http://www.scc.state.id.us/programs.htm>

The Conservation Research and Education program was created through the 1996 Farm Bill and is administered by the National Natural Resources Conservation Foundation. The purpose of the program is to fund research and educational activities related to conservation on private lands through public-private partnerships.

Conservation Reserve Program (CRP), FSA <http://www.id.nrcs.usda.gov/programs/financial.html>

The CRP program provides a financial incentive to landowners for the protection of highly erodible and environmentally sensitive lands with grass, trees, and other long-term cover. This program is designed to remove those lands from agricultural tillage and return them to a more stable cover. This program holds promise for nonpoint source control since its aim is highly erodible lands.

Conservation Technical Assistance (CTA), NRCS

<http://www.id.nrcs.usda.gov/programs/financial.html>

Technical assistance for the application of BMPs is provided to cooperators of soil conservation districts by the NRCS. Preparation and application of conservation plans is the main form of technical assistance. Assistance can include the interpretation of soil, plant, water, and other physical conditions needed to determine the proper BMPs. The CTA program also provides financial assistance in implementing BMPs described in the conservation plan.

Environmental Quality Incentives Program (EQIP), NRCS

<http://www.id.nrcs.usda.gov/programs/financial.html>

EQIP is a program based on the 1996 Farm Bill legislation. EQIP offers technical assistance, and cost share monies to landowners for the establishment of a two to ten year conservation agreement activities such as manure management, pest management, and erosion control. This program gives special consideration to contracts in those areas where agricultural improvements will help meet water quality objectives.

Farm Services Agency Direct Loan Program, FSA <http://www.fsa.usda.gov/pas/default.asp>

This program provides loans to farmers and ranchers who are unable to obtain financing from commercial credit sources. Loans from this program can be used to purchase or improve pollution abatement structures.

Grassland Reserve Program (GRP), NRCS <http://www.nrcs.usda.gov/programs/GRP/.htm>

A voluntary program offering landowners the opportunity to protect, restore, and enhance grasslands on their property.

Idaho Water Resources Board Financial Programs, IDWR

<http://www.idwr.state.id.us/waterboard/financial.htm>

The Idaho Water Resources Board Financial Program assists local governments, water and homeowner associations, non-profit water companies, and canal and irrigation companies with funding for water system infrastructure projects. The various types of projects that can be funded include: public drinking water systems, irrigation systems, drainage or flood control, ground water recharge, and water project engineering, planning and design. Funds are made available through loans, grants, bonds, and a revolving development account.

Range Improvement Fund - 8100, BLM <http://www.id.blm.gov>

This program focuses on improving rangeland management conditions, including the implementation of best management practices. A portion of the money to operate the program comes from the grazing fees paid by permittees.

Small Watersheds (PL-566), NRCS <http://www.id.nrcs.usda.gov/programs/financial.html>

The Small Watersheds program authorizes the NRCS to cooperate in planning and implementing efforts to improve soil and water conservation. The program provides for technical and financial assistance for water quality improvement projects, upstream flood control projects, and water conservation projects.

Resource Conservation and Development (RC&D), NRCS

<http://www.id.nrcs.usda.gov/programs/financial.html>

Through locally sponsored areas, the RC&D program assists communities with economic opportunities through the wise use and development of natural resources by providing technical and financial assistance. Program assistance is available to address problems including water management for conservation, utilization and quality, and water quality through the control of nonpoint source pollution.

Resource Conservation and Rangeland Development Program (RCRDP), SCC

<http://www.scc.state.id.us/loans.htm>

The RCRDP program provides grants for the improvement of rangeland and riparian areas, and loans for the development and implementation of conservation improvements.

State Revolving Fund (SRF), IDEQ <http://www.deq.state.id.us/water/water1.htm#funding>

The IDEQ Grant and Loan Program administers the State Revolving Fund.

<http://www.deq.state.id.us/water/water1.htm>. The purpose of the program is to provide a perpetually revolving source of low interest loans to municipalities for design and construction of sewage collection and treatment facilities to correct public health hazards or abate pollution. State Revolving Loan funds are also used to support the Source Water Assessment Program and Nonpoint Sources.... The Grant and Loan Program uses a priority rating form to rank all projects primarily on the basis of public health, compliance, and affordability. Additional points are awarded to projects that have completed a source water assessment and are maintaining a protection area around their source.

Water Quality Program for Agriculture (WQPA), ISCC

<http://www.scc.state.id.us/docs/wqpafs.doc>

Provides financial incentives to owners and operators of agricultural lands to apply conservation practices to protect and enhance water quality and fish and wildlife habitat.

Wetlands Reserve Program (WRP), NRCS <http://www.id.nrcs.usda.gov/programs/financial.html>

WRP was established to help landowners work toward the goal of "no net loss" of wetlands. This program provides landowners the opportunity to establish 30-year or permanent conservation easements, and cost-share agreements for landowners willing to provide wetlands restoration.

Wildlife Habitat Incentive Program (WHIP), NRCS

<http://www.id.nrcs.usda.gov/programs/financial.html>

WHIP was established to help landowners improve habitat on private lands by providing cost-share monies for upland wildlife, wetland wildlife, endangered species, fisheries, and other wildlife. Additionally, cost share agreements developed under WHIP require a minimum 5-year contract.

Many of these programs could be used in combination with each other to implement BMPs.

OUTREACH

An intensive outreach program will be conducted through the VSWCD and its partners, IASCD, ISCC, and NRCS. The purpose of these outreach programs is to inform agricultural landowners and operators how water quality BMPs can benefit their farm or ranch.

District newsletters, direct mailings, project tours, demonstration projects, landowner meetings, and personal contacts will be conducted as part of this outreach effort. Other outreach objectives include:

- Provision of information about the TMDL process
- Increased landowner support for water-quality BMPs
- Distribution of TMDL implementation progress reports
- Greater awareness of agriculture's involvement in the protection and enhancement of natural resources
- Increased public awareness of agriculture's commitment to meeting the TMDL challenge
- Distribution of Proper Functioning Condition reports to private landowners involved

MONITORING AND EVALUATION

Field Level

Component practice BMP evaluation is done in conjunction with conservation plan and contract implementation. The objective of an individual conservation plan evaluation is to verify that BMPs are properly installed, maintained, and working as designed. An October 2003 publication by ISCC and IDEQ entitled *Idaho Agricultural Best Management Practices: "A Field Guide for Evaluating BMP Effectiveness"* provides the specifications and protocol for BMP evaluation to be used by field staff. Monitoring for pollutant reductions from individual projects consists of spot checks, annual reviews, and evaluation of advancement toward reduction goals. The results of these evaluations are used to recommend any necessary adjustments to continue meeting resource objectives. Annual status reviews are typically done within program contracts to ensure compliance with contract rules. Where conservation plans are developed in cooperation with the VSWCD, progress is tracked during the life of a program contract. Local tracking is assisted by NRCS and ISCC agency program specialists, where cost-share programs/projects are active. Where cost-share programs are not used, tracking will be conducted, as resources are available by the VSWCD or NRCS field offices.

Watershed Level

At the watershed to subbasin level, there are many government and private groups involved with water quality monitoring. The Idaho Department of Environmental Quality uses BURP to collect and measure key water quality variables that aid in determining the beneficial use support status of Idaho's water bodies. The determination will tell if a water body is in compliance with water quality standards and criteria. Project and program specific reviews will be conducted to ensure that projects are on schedule and on target. DEQ will conduct a 5-year status review of the North Fork Payette River Watershed and TMDL. Monitoring will be the key to successful application of the adaptive watershed planning and implementation process.

APPENDIX A

BIG CREEK SUBWATERSHED

Big Creek Subwatershed

The Big Creek Subwatershed encompasses 45,976 acres within the North Fork Payette River Watershed (figure 5). Big Creek is a third order stream with a dendritic pattern that originates at 6,577 feet near Big Creek summit off of the Warm Lake Highway near Cascade in Valley County. It flows in a northern direction before it enters the North Fork Payette River below Cascade Dam at 4,723 feet.

The Horsethief Reservoir, fed by Horsethief Creek, is in the Big Creek subwatershed. It is a place for recreationists and avid fishermen. Idaho Fish and Game owns and operates the 275-acre reservoir and maintains it as a fishery for high angler use (IDWR 1999).

Big Creek stream channels are slightly entrenched. In the 1950's, the lower portion of Big Creek was dredged for radioactive phosphate (monazite). After a few years, 7,085 short tons were removed leaving tailing piles behind that are still present. This activity has influenced the morphology of the lowermost reaches near the mouth of Big Creek and could have possibly lead to entrenchment (IDEQ, 2005).

Land Ownership and Land Use

The Big Creek subwatershed land uses include timber harvest and pasture. Watershed acres that are currently used for forestry practices are 17,442 acres. The area of canopy removed through timber harvest and road construction is estimated to be 1,511 acres (IDL, 2002).

The majority of the watershed is public land managed by USFS with about 20% private landholdings in the middle and lower portions. Big Creek land uses include dryland pasture, surface irrigated pasture, grazed forest, and rural residential. In the last few years, subdivisions have become prevalent, and plans are in place for many more. Approximately 10,381 acres are considered farmable acres. Table 12 below shows the total acreage of each land use.

Table 12. Land Use – Big Creek Subwatershed

Type of Irrigation	Total Acres
Dryland/non-irrigated pasture	4,665
Surface Irrigated pasture	1,125
Grazed forest	3,819
Rural residential	773

The land uses in this agricultural segment are being addressed for sediment. A bank stability target has been set at 80% of the overall reach for a landowner's property.

Figure 5. Big Creek Land Ownership

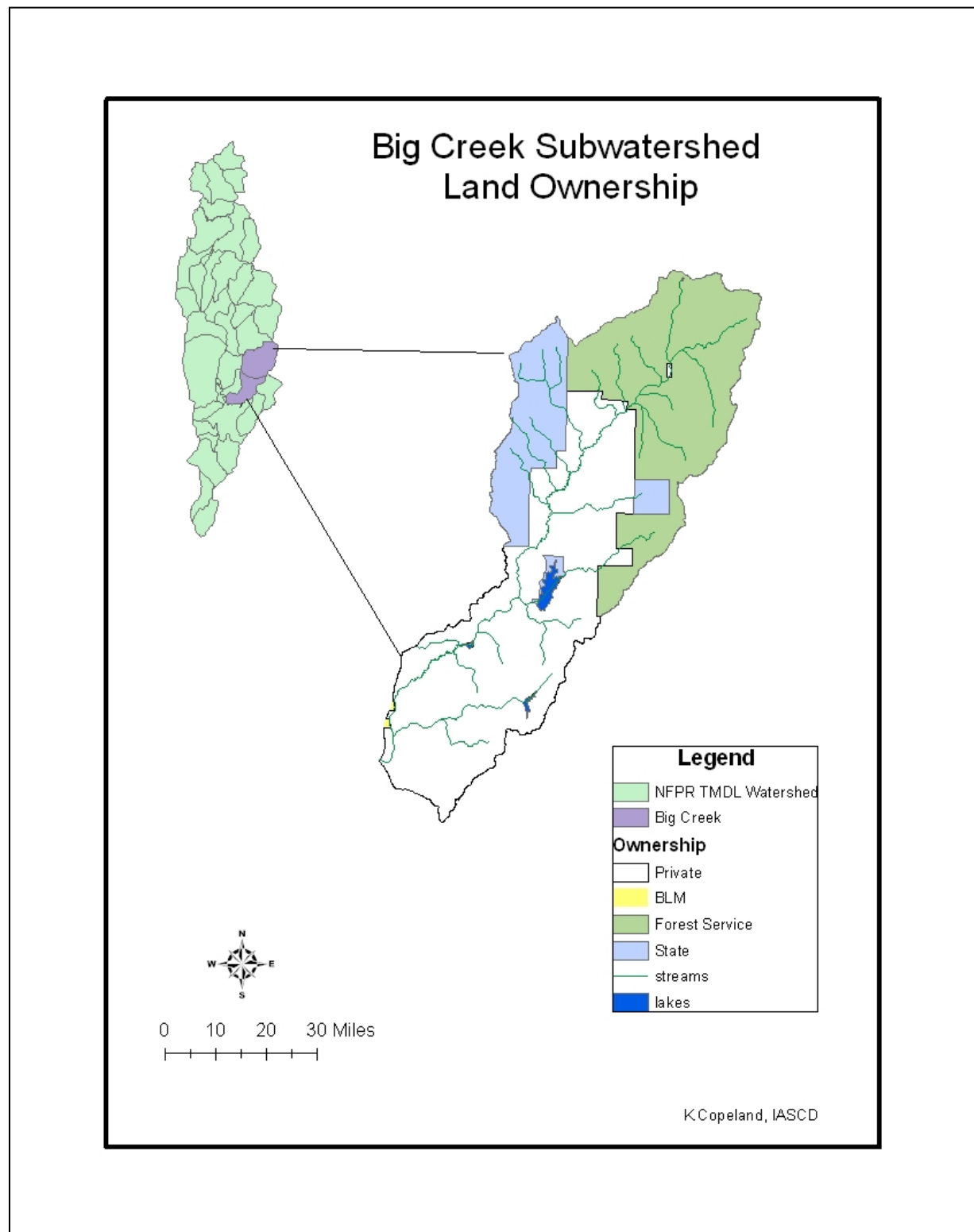


Table 13. PFC Riparian Attributes assessed on Big Creek reaches

Table 13. Various Riparian Attributes						
Stream Reach	Vegetation withstanding high stream flow events?	Species present for soil moisture maintenance?	Excessive Bank Erosion	Excessive Deposition?	System Vertically Stable?	Floodplain adequate to dissipate energy?
BC1	Y	Y	N	N	Y	N
BC4	Y	NA	N	N	Y	N

Figure 6. PFC Big Creek reaches assessed 2004



Two reaches were also assessed, but due to missing data they are not stated in this report. The North Fork Payette River WAG requested that the reaches will be re-assessed in the summer of 2007. More detailed descriptions of riparian attributes can be obtained from field sheets located at the VSWCD.

APPENDIX B

CLEAR CREEK SUBWATERSHED

Clear Creek Subwatershed

Clear Creek is a 15.8 mile stream that drains 31,523 acres of the NFPR watershed (Figure 7). The elevation change in the watershed is 2,705 feet from 7,425 feet at the headwaters to 4,720 feet at the mouth. At the mouth Clear Creek drains into the North Fork Payette River just below Cascade Dam.

Clear Creek originates in moderately to steeply timbered mountainous slopes with episodic flows generated from rainfall (Ferguson, 2004). Peak flows usually occur in May or June. In the early summer until late fall, the lower reach of Clear Creek is de-watered by an irrigation diversion on private land (USFS, 1999).

Land Ownership and Land Use

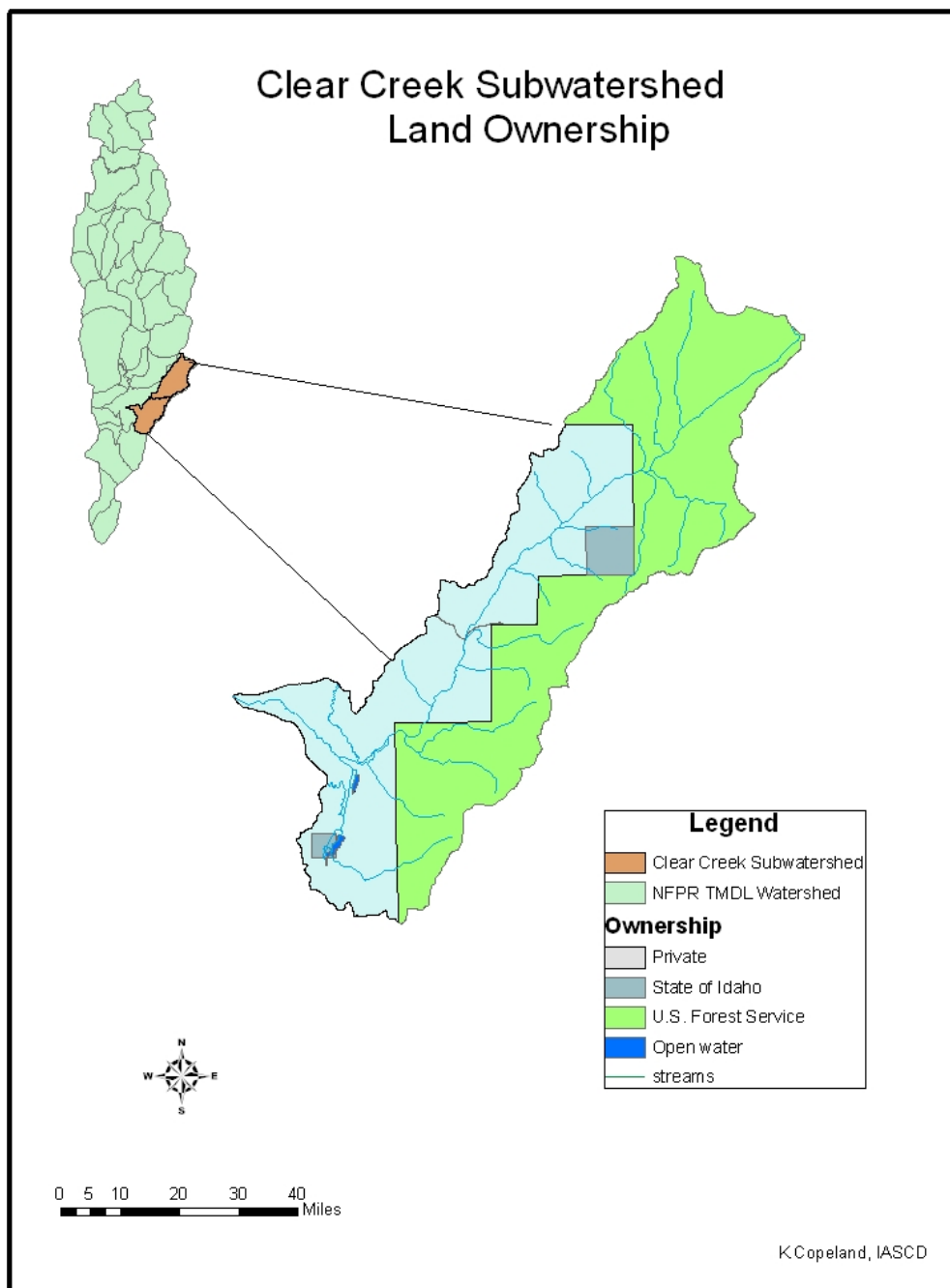
The primary land use within the watershed is forestland. The lower and middle reaches of Clear Creek are primarily on private land. Within the privately held portion, land uses are primarily, grazed forest and rangeland and surface irrigated pasture. Agricultural related activities such as ranching and grazing are practiced. There are also residential subdivisions in the lower portion of the watershed. Approximately 2,444 acres are deemed farmable acreage.

Vegetation varies throughout the Clear Creek Subwatershed. Vegetation transitions from conifer cedar land/forests in the upper reach such as, Douglas fir, Grand fir, Western Larch, and Lodge pole pine to sedge/grass to willow dominated stream channels in the lower section of the watershed. Agricultural reaches are being addressed for sediment. A bank stability target has been set at 80% of the overall reach for a landowner.

Table 14. Land Use-Clear Creek

Type of Irrigation	Total Acres
Dryland/non-irrigated pasture	1,884
Surface Irrigated pasture	2,382
Grazed forest	62
Rural residential	700

Figure 7. Clear Creek Landownership Map



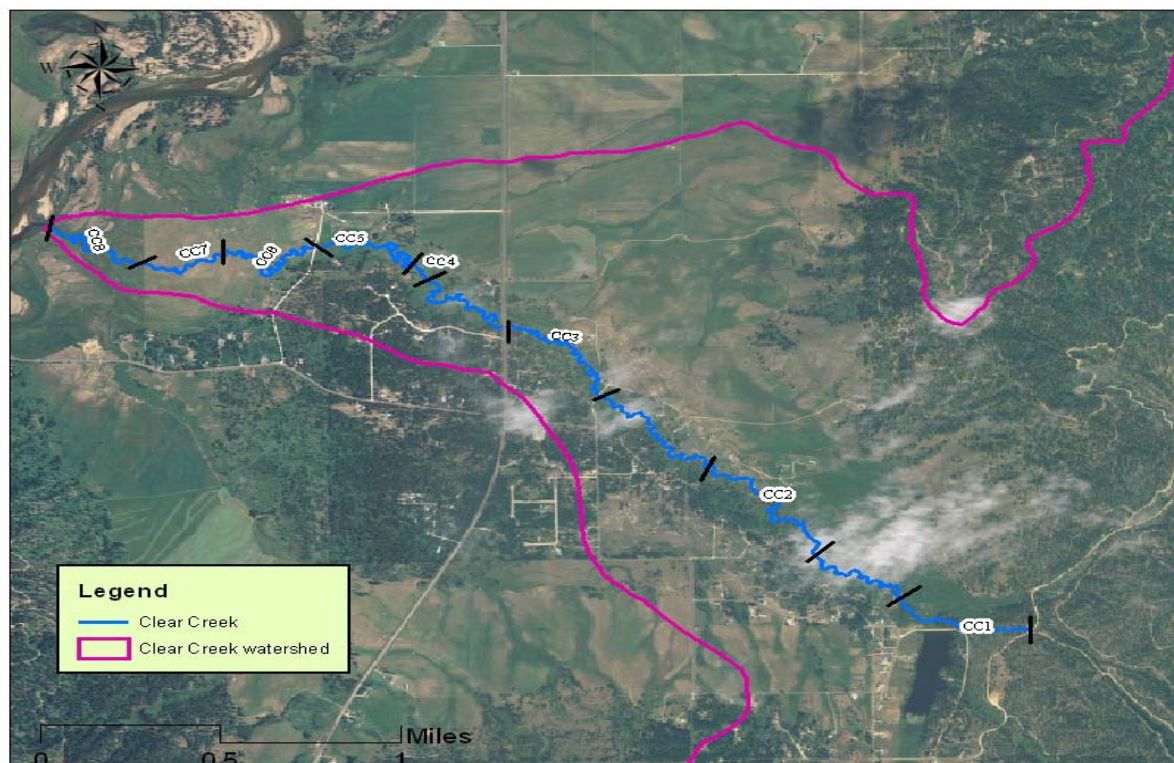
Water Quality Issue

The water quality issue that will be addressed in the segment of Clear Creek is sediment. This segment of stream in the lower reach is primarily privately owned agricultural lands. There are two primary sources that are responsible for the sediment problem in Clear Creek. The first is in-stream channel/bank soil erosion from land bordering the stream and the second is sediment being transported to the creek by agricultural drains and tributaries (IDEQ, 2005).

Table 15. Various Riparian Attributes						
Stream Reach	Vegetation withstanding high stream flow events?	Species present for soil moisture maintenance?	Excessive Bank Erosion	Excessive Deposition?	System Vertically Stable?	Floodplain adequate to dissipate energy?
CC1	Y	Y	N	N	Y	Y
CC2	Y	Y	Y	Y	Y	Y
CC3	Y	Y	Y	Y	Y	N
CC4	Y	Y	Y	Y	Y	N
CC5	Y	Y	Y	Y	Y	N
CC6	Y	Y	Y	Y	Y	N
CC7	Y	Y	Y	Y	Y	N
CC8	Y	Y	N	N	Y	N

Table 15 describes the attributes found in the 2004 PFC assessment of Clear Creek. Because the targets are 80% bank stability and the TMDL is for sediment, a few attributes were emphasized here.

Figure 8. PFC Clear Creek reaches assessed 2004



APPENDIX C

ROUND VALLEY SUBWATERSHED

Round Valley Creek Subwatershed

Round Valley is a stream that flows six miles through primarily pastureland in the Highway 55 Canyon. The headwaters of Round Valley Creek originate at 5,200 feet, and it enters into the North Fork Payette River above the Rainbow Bridge. Chipps Creek and Bacon Creek are two small tributaries to Round Valley Creek.

There is little flow information for Round Valley Creek. It has been redirected and channelized in sections, which affects flow characteristics. Channelized sections experience higher flows. Because of the low elevation of Round Valley Creek, it tends to have an earlier peak flow than other creeks in the watershed. A sustainable late/summer or fall flow is typically less than one cubic ft/sec (cfs) (IDEQ, 2005).

Land Ownership and Land Use

The Round Valley Creek Sub-watershed consists of a total of 15,711 acres. There are approximately 7,327 farmable acres. The primary land use within the Round Valley Creek watershed is surface irrigated pasture. Most of the land in Round Valley is primarily used for agriculture, although much of the land use is changing to residential development. This change often leaves the land idle.

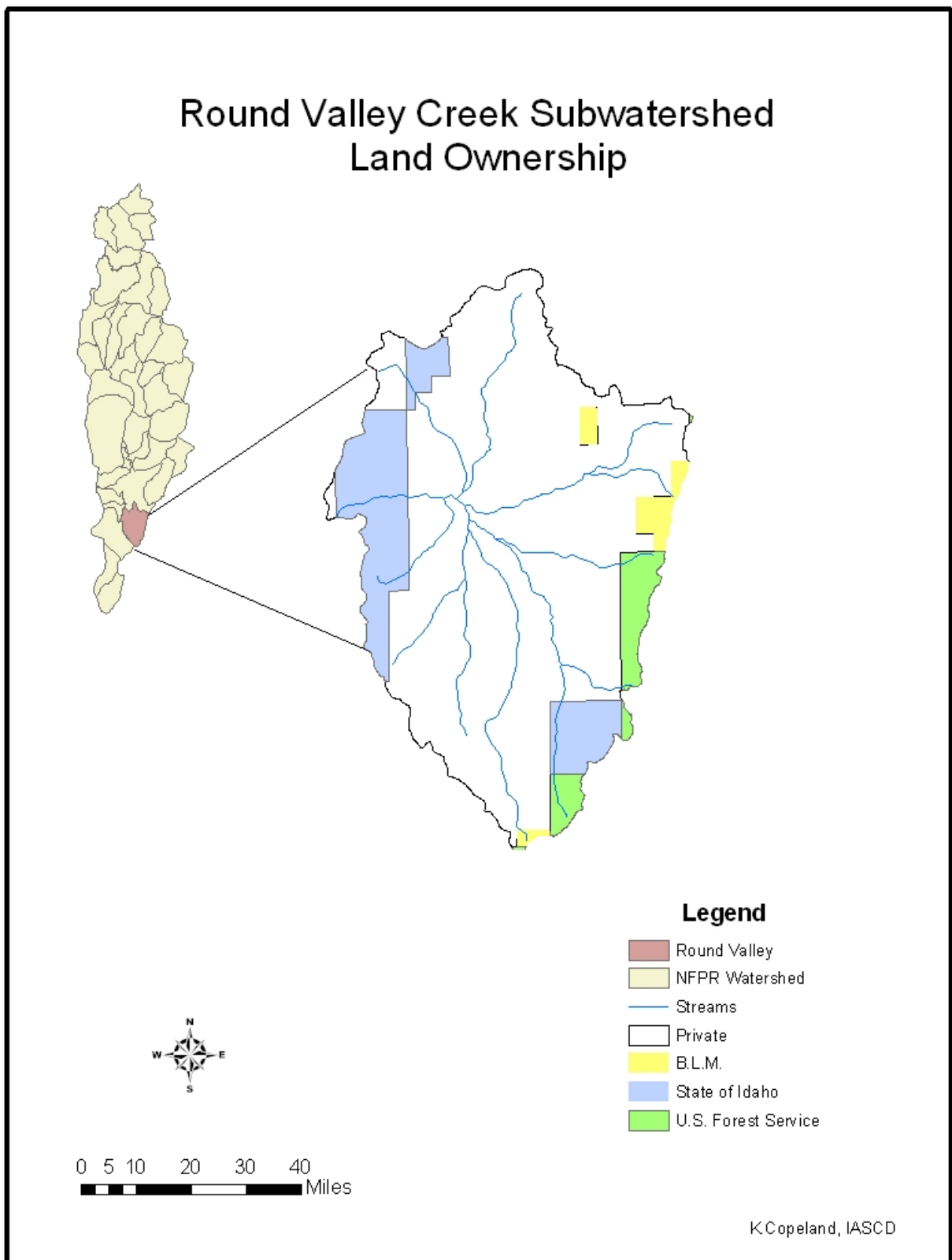
Within the privately held portion of Round Valley Creek, the land uses are primarily agricultural with surface irrigated pasture, dryland pasture, and grazed forest. Agricultural related activities such as livestock grazing are practiced in the subwatershed. A small portion of timber has grazing allotments on it for sheep, but has recently become inactive in the past year.

Figure 9 shows the land ownership within Round Valley Creek watershed. Table 16 summarizes the land ownership in the Round Valley Creek subwatershed. There are approximately 5.7 total stream miles. An analysis by land area shows that 65% is comprised of private land. Based on the 2003 PFC assessment, Round Valley Creek subwatershed was found to have active riparian livestock grazing. Private lands are often used as holding areas before and after public land grazing periods. Most private land areas consist of wider valleys with lower stream gradients and public land management agencies manage the public lands for multiple resources and purposes.

Table 16. Round Valley Creek Land Use

Land Use Type	Total Acres
Dryland/non-irrigated pasture	6,070
Surface Irrigated pasture	52
Grazed forest	1128
Rural residential	77

Figure 9. Round Valley Land Ownership Map



Various Riparian Attributes

Table 17 below shows attributes provided in the PFC protocol that were used to evaluate reaches.

Table 17. Summary of PFC attributes for Round Valley Creek Assessment

Table 17. Various Attributes						
Stream Name	Vegetation withstanding high stream flow events?	Species present for soil moisture maintenance?	Excessive Bank Erosion	Excessive Deposition?	System Vertically Stable?	Floodplain adequate to dissipate energy?
RV1	Y	Y	Y	Y	Y	N
RV2	Y	Y	Y	Y	N	N
RV3	Y	Y	Y	Y	N	N
RV4	Y	Y	Y	Y	Y	N
RV5	Y	Y	Y	Y	Y	N
RV6	Y	Y	Y	Y	Y	N
RV7	Y	Y	Y	Y	Y	N
RV8	Y	Y	Y	Y	N	N

**Figure 10.
Round
Valley
Creek
PFC
Reaches
Assessed**



APPENDIX D

NORTH FORK PAYETTE RIVER

North Fork Payette River (Clear Creek to Smith's Ferry) Subwatershed

North Fork Payette River (NFPR) (Clear Creek to Smith's Ferry) is a perennial stream that drains approximately 35,448 acres of primarily forest and rangeland. NFPR flows through a winding basalt canyon in places and then opens into a wider low gradient valley. In the canyon areas, the channel shape is trapezoid, and flat, broad and shallow in the pasture areas located in Smith's Ferry (IDEQ, 2005).

Riparian Assessment

A stretch of the North Fork Payette River was visually assessed for stream bank stability in June 2006 by IASCD staff, to collect data to ground truth the aerial photography assessed by IDEQ. The reach was approximately 9.8 miles long continually to Cabarton Bridge where Clear Creek enters the North Fork Payette River. The bridge is located on Clear Creek Rd, about 14 miles south of Cascade. Three reaches, a total of 565 feet, were found to be lacking in riparian vegetation, possibly in a downward vegetative trend, but bank stability does not seem to be such a problem because of the reservoir. A possible ramping effect involved with the operation of Cascade Reservoir Dam could affect flow levels and impact river banks.

The goals of the assessment were to determine if bedload sediment is affecting the North Fork Payette River and its beneficial uses (salmonid spawning; cold water biota) and to check for overall bank stability.

The North Fork Payette River Subbasin Assessment states that overall average bank stability was 70% from Cascade Dam to Smiths Ferry. Interpretation by aerial photo analysis showed that NFPR was below the 80% banks stability target. The conclusion was drawn that the excess sediment is being delivered to the river from bank erosion (IDEQ, July 2005).

Figure 11. NFPR watershed reach assessed



Figure 12. North Fork Payette River Downstream



Figure 13. North Fork Payette River Downstream near Cabarton Bridge



APPENDIX E

WATERSHED ACCOMPLISHMENTS

Beaver Creek, Clear Creek, and Round Valley were assessed by ISCC and IASCD in 2004. Other accomplishments include a field observation assessment of the listed subwatershed reaches conducted by IASCD staff in June 2006. Digital photos were taken in 2006 to see the changes in vegetation since the 2004 assessment. Below are some examples of before and after pictures that were taken. Fencing in the Clear Creek Area showed signs of improvement by 2006. The digital photos are shown below for each creek.

Figure 14. 2004 Beaver Creek Visual Assessment Upstream



Figure 15. 2006 Beaver Creek Visual Assessment Upstream



Figure 16. 2004 Clear Creek Fencing Project



Figure 17. 2006 Clear Creek Fencing Project



Figure 18. 2004 Round Valley Creek Upstream



Figure 19. 2006 Round Valley Creek Upstream



APPENDIX F

RIPARIAN RECOMMENDATIONS

Recommendations

Eroding sections of the tributaries within the NFPR watershed are considered a high priority to reestablish 80% bank stability and improve in-stream channel erosion. This target prioritizes the four listed streams. Round Valley is a high priority to stabilize head cuts and bank stability. Clear Creek is a moderate priority for grazing management and fencing. Big Creek is a moderate-low priority for grazing management issues, and the NFPR a low priority for grazing management and fencing. The following tables outline the impaired reaches, recommended actions to improve them, recommended best management practices for implementation and projected water quality benefits.

These tasks were interpreted and analyzed from 2004 Proper Functioning Condition Assessment summary reports by David Ferguson, ISCC, on Big Creek, Clear Creek, and Round Valley Creek.

Table 18. Big Creek Riparian Recommended Task Summary
BC=Big Creek

Reach/Length	Recommended Tasks	Possible BMPs	Water Quality Benefits
BC1, BC4 10,303 ft.	PFC Rating: Functioning at Risk; Vegetation in an upward trend		
	More rush and sedge planted	Practice Code: 612 Tree & Shrub Establishment	Greater impact on streambank stabilization efforts.
	Regeneration of riparian species(shrubs) is needed	Practice Code: 612 Tree & Shrub Establishment	Allow woody shrubs to regenerate to deal with excess sediment
	Switch to shortened grazing period and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase riparian vegetation productivity
	Temporary exclusion from riparian zone	Practice Code 472: Use Exclusion	Regeneration of vegetation and reestablish rushes and sedges
	Grazing management systems	Practice Code: 574 Spring Development	Offsite water developments to reduce stream impacts
	Creating riparian pastures	Practice Code: 382 Fence	Improve native plant populations
	Hardened stream/rock crossings	Practice Code: 578 Stream Crossings	Reduce bank damage and encourage livestock to cross and use water at a particular point
	Decrease Lodgepole Pine percentage and introduce greater numbers of Ponderosa Pine, Firs, Spruce	Practice Code: 612 Tree & Shrub Establishment	Provide greater diversification and long-term stream health conditions due to rapid decomposition of Lodgepole.
BC2, BC3, 11,654 ft.	Not rated due to missing data		

Table 19. Clear Creek Riparian Recommended Task Summary
CC=Clear Creek

Reach/Length	Recommended Tasks	Possible BMPs	Water Quality Benefits
CC1 2,505 ft.	PFC Rating: Proper Functioning Condition		
	Continue Current Management; Maintain current condition	Current conditions support water quality goals	
CC2 3,504 ft.	PFC Rating: Functioning at Risk; Vegetation in an upward trend		
	Maintain current condition; Continue Current Management, there is little grazing impact	Current conditions support water quality goals	
CC4, CC5 3,521 ft.	PFC Rating: Functioning At Risk; over- widened channel with excessive sand in channel		
	Reduce grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
CC6 3,058 ft. ft.	PFC Rating: Functioning at Risk; over-widened channel, excessive deposition and stream bank sloughing; conservation plan is in place		
	Reduce grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
	Hardened Stream Crossings	Practice Code: 578 Stream Crossings	Hardened crossings to minimize instability
	Grazing Management systems	Practice Code: 574 Spring Development	Offsite water developments to reduce in stream impacts
CC7 517 ft.	PFC Rating: Non-functional; regeneration of riparian species limited		
	Reduce grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
	Riparian Pasture development	Practice Code: 382 Fence	Improve plant populations
	Address Large head cutting	Practice Code: 410 Grade Stabilization Structure	Stabilize head cut, reduce in stream erosion
	Streambank and Shoreline Protection and Establish plant communities for stabilized stream area	Practice Code: 612 Tree & Shrub Establishment	Reduce Sediment
CC8 659 ft.	PFC Rating: Functional At Risk; vegetative in an upward trend; damage from moderate to light flood events		
	Reduce Grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
	Add fencing with watering facilities to assist; fence needs repaired between land owners	Practice Code: 382 Fence	Improve pasture efficiencies; increase bank stability

Table 20. Round Valley Creek Riparian Recommended Task Summary
RV=Round Valley Creek

Reach/Length	Recommended Tasks	Possible BMPs	Water Quality Benefits
RV1 1,241 ft.	PFC Rating: Functioning at Risk; damaged from moderate to light flood events		
	Reduce Grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
	Limit access to channels in some locations for regeneration of shrubs	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity; increase bank stability
	Fence needs repaired between landowners	Practice Code: 382 Fence	Increase bank stability
RV2 3,584 ft.	PFC Rating: Functioning At Risk; damaged from moderate to light flood events		
	Grazing Plan; Reduce Grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
	Address Large head cutting	Practice Code: 410 Grade Stabilization Structure	Stabilize head cut, reduce in stream erosion
RV3 3,072 ft	Non-functional; reach created in 1990's (ditch)		
.	Address Large head cutting	Practice Code: 410 Grade Stabilization Structure	Stabilize head cut, reduce in stream erosion
RV4 1,681 ft.	Functioning At Risk; ditch was directed to increase irrigation supply		
	Reduce Grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
	Regeneration of riparian species(shrubs)	Practice Code: 612 Tree & Shrub Establishment	Allow woody shrubs to regenerate to deal with excess sediment
RV5 4,504 ft.	Functioning at Risk; vegetation in an upward trend; reach not actively used by agriculture; no recommendations made		
RV6, RV7 3,294 ft.	Functioning at Risk; vegetation in downward trend		
	Regeneration of riparian species(shrubs)	Practice Code: 612 Tree & Shrub Establishment	Allow woody shrubs to regenerate to deal with excess sediment
	Reduce Grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase vegetative productivity
	Grazing Management systems	Practice Code: 574 Spring Development	Offsite water developments to reduce in stream impacts
RV8 2,751 ft.	Functioning at Risk; vegetation in downward trend		
	Riparian Pasture Development	Practice Code: 382 Fence	Improve native plant populations
	Reduce Grazing duration and adjust grazing schedules	Practice Code: 528 Prescribed Grazing	Improve plant vigor, increase plant productivity

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